Episode 19: Launching Artemis

February 2020

@NASAKennedy
#NASARocketRanch

New episodes every month!

1
00:00:00,799 --> 00:00:03,230
Sometimes history inspires us.

2
00:00:03,230 --> 00:00:09,370
I believe that this nation should commit itself
to achieving the goal, before this decade

3
00:00:09,370 --> 00:00:14,610
is out, of landing a man on the moon and returning
him safely to the earth.

4
00:00:14,610 --> 00:00:17,830
Sometimes we find ourselves in the middle
of history being made.

5
00:00:17,830 --> 00:00:25,780
The next American man and the first woman
ever will be Americans on the surface of the

6
00:00:25,780 --> 00:00:29,100
moon within five years.

7
00:00:29,100 --> 00:00:36,580
EGS Program chief engineer verifying no constraints
to launch. Three, two, one, and lift off.

8
00:00:36,580 --> 00:00:41,640
Welcome to space.

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00:00:41,640 --> 00:00:45,910
Now we are in the middle of the most aggressive
push for the moon since we landed there the

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00:00:45,910 --> 00:00:52,320
first time 50 years ago. Leading the charge
is the first female Launch Director, Charlie

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00:00:52,320 --> 00:00:57,170
Blackwell-Thompson. She and her right-hand

woman, Jessica Parsons, took a few minutes

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00:00:57,170 --> 00:01:00,890
out of their incredibly busy schedule to share
some unique perspectives.

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00:01:00,890 --> 00:01:05,900
All right, I'm here in the booth now with
Charlie Blackwell-Thompson and Jessica Parsons.

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00:01:05,900 --> 00:01:07,540
Ladies, thanks for joining me today.

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00:01:07,540 --> 00:01:09,550
Oh, we're happy to be here.

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00:01:09,550 --> 00:01:10,550
Thanks for having us.

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00:01:10,550 --> 00:01:15,270
Absolutely, so I want to let you all introduce
yourselves. So tell us a little bit about

18
00:01:15,270 --> 00:01:21,520
what your role is for NASA and Exploration
Ground Systems and kind of how you got where

19
00:01:21,520 --> 00:01:22,640
you are just real briefly.

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00:01:22,640 --> 00:01:26,110
Okay, well, Jess, you want me to go first
or...?

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00:01:26,110 --> 00:01:27,110
Sure.

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00:01:27,110 --> 00:01:31,430
Okay, well, I'm Charlie Blackwell-Thompson.

I am the Launch Director. So I think I have

23
00:01:31,430 --> 00:01:32,640
a pretty-

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00:01:32,640 --> 00:01:38,380
Hold on...Launch Director...that's a pretty awesome title. So I'm assuming that means

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00:01:38,380 --> 00:01:43,300
really the buck stops with you when it comes to launch day.

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00:01:43,300 --> 00:01:50,500
That's a pretty fair assessment, I would say. It's a fantastic job! I think a lot of folks

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00:01:50,500 --> 00:01:54,910
think about day of launch when you think about the launch director, right...the one that

28
00:01:54,910 --> 00:02:00,630
gives that final "Go" to the team to proceed into terminal count. But our days are really

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00:02:00,630 --> 00:02:06,550
filled now with getting ready for that launch...in planning the launch countdown, the procedures,

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00:02:06,550 --> 00:02:11,250
and getting our team ready to go. So there's a tremendous amount of work that goes into

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00:02:11,250 --> 00:02:17,080
or precedes that actual day of launch. But no doubt about it, I have an absolutely fantastic

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00:02:17,080 --> 00:02:20,640
job. I get to work with an incredible group of people.

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00:02:20,640 --> 00:02:23,190
I obviously cut you off, so I want to let
you continue. Kind of tell us, how did you

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00:02:23,190 --> 00:02:24,760
get to be the Launch Director?

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00:02:24,760 --> 00:02:31,390
Well, let's see, I came to Kennedy Space Center
30 years ago right out of school, right out

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00:02:31,390 --> 00:02:38,480
of Clemson University...so go Tigers! I had
a tour of Firing Room 1. As part of that,

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00:02:38,480 --> 00:02:43,120
it was interview over in the payload side
of the house. It was actually in their flight

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00:02:43,120 --> 00:02:47,960
software area. So I toured through Firing
Room 1, and I heard the team that was actually

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00:02:47,960 --> 00:02:52,870
getting Space Shuttle Discovery ready for
return to flight. They were in there working,

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00:02:52,870 --> 00:02:57,220
and they were testing out the flight hardware.
I was really struck when I walked through

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00:02:57,220 --> 00:03:01,480
the room with wanting to be a part of that
team. So I was lucky enough to get selected

42
00:03:01,480 --> 00:03:07,090
for that job. So I started my career in payloads.
Thought I had the most fantastic job in the

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00:03:07,090 --> 00:03:12,340
entire world. I got to work on planetary spacecraft.
I got to work on the International Space Station.

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00:03:12,340 --> 00:03:16,660
I got to work on the Hubble Space Telescope.
So here I am, a country girl from South Carolina,

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00:03:16,660 --> 00:03:22,140
and I get this amazing opportunity. Then when
the Shuttle Program ended, I had an opportunity

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00:03:22,140 --> 00:03:28,099
to take some of that experience I had on the
launch side of things and move over to Exploration

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00:03:28,099 --> 00:03:32,640
Ground Systems and help them with their launch
planning...which eventually led to the role

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00:03:32,640 --> 00:03:34,099
of the Launch Director.

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00:03:34,099 --> 00:03:39,531
Amazing...and for those that don't know, the
Firing Room that you toured is now where you

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00:03:39,531 --> 00:03:45,440
will be conducting a team to launch SLS here
hopefully next year.

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00:03:45,440 --> 00:03:52,470
Yes, it is not lost on me at all. When I walk
in that room...and I'm in there multiple times

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00:03:52,470 --> 00:03:59,060
a week...when I walk in the room, I have that
same feeling I had 30 years ago. It is that

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00:03:59,060 --> 00:04:03,290
I want to be a part of this team. I want to
be a part of this team that's getting our

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00:04:03,290 --> 00:04:10,420
ground systems ready for the flight hardware,
and a part of the team that is going to return

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00:04:10,420 --> 00:04:13,410
to the moon in five years. I mean, how exciting
is that?

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00:04:13,410 --> 00:04:17,600
Yeah, it's pretty awesome. We will talk more
about that in a minute. Jessica, I want to

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00:04:17,600 --> 00:04:23,110
make sure you get a chance to introduce yourself.
Is it fair to say that you're kind of playing

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00:04:23,110 --> 00:04:25,779
right hand to Charlie? Is that an accurate
assessment?

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00:04:25,779 --> 00:04:32,930
Yeah, I would say that. I am Charlie's Technical
Assistant. This is a new role, I think, both

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00:04:32,930 --> 00:04:40,169
for her and for me. Let's see, I'll give you
a little of my background. I grew up...and

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00:04:40,169 --> 00:04:44,009
I can remember probably when I was five years
old, I was like, "I want to work for NASA."

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00:04:44,009 --> 00:04:50,139
That was my dream. I had my career set in
mind since I was a little kid. So what I did

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00:04:50,139 --> 00:04:54,689
in high school actually was I talked to my
career counselor and I said, "Well, what career

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00:04:54,689 --> 00:05:00,389
will get me to work for NASA?" They were
like, well, maybe an engineer field. So I

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00:05:00,389 --> 00:05:04,289
started looking at different...there was like
aerospace engineer. I'm like, well, that one

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00:05:04,289 --> 00:05:10,949
has the "space" word in it. I'm going for
it. I will tell you something a lot of people

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00:05:10,949 --> 00:05:16,569
probably don't know, but I didn't speak English
till I was 15. So I found myself a different

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00:05:16,569 --> 00:05:20,960
language, and I went to a college education
just because I wanted to pursue my dream to

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00:05:20,960 --> 00:05:22,229
work for NASA.

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00:05:22,229 --> 00:05:24,050
That's awesome.

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00:05:24,050 --> 00:05:29,479
So that's the advice I would give not only
the little girls or girls or anybody...just

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00:05:29,479 --> 00:05:35,870
follow your dreams. Doing that is what has
gotten me where I am today...just never giving

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00:05:35,870 --> 00:05:43,780
up, following every obstacle, following through,

giving my best every time. I think whatever

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00:05:43,780 --> 00:05:48,779
they want to achieve, they will get there.
I will say that I'm working for Charlie kind

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00:05:48,779 --> 00:05:55,919
of by luck. She needed some help doing some
technical integrations for aspects that were

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00:05:55,919 --> 00:06:03,180
related to launch. I had worked for her doing
an assignment, and she said, "Oh, it's some

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00:06:03,180 --> 00:06:09,650
help I kind of need in this area." Then
that ended up turning into a more full-time

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00:06:09,650 --> 00:06:16,779
job, and I've been doing this for probably
the last year now. I will tell you, it's a

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00:06:16,779 --> 00:06:22,630
job that I love. I never thought in my career
that I was going to be support in the Firing

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00:06:22,630 --> 00:06:30,509
Room. We had our first, like, cryo sim demo.
When we had that I was like...I sat in the

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00:06:30,509 --> 00:06:34,740
Firing Room, I listened to the team. I was
just there kind of listening my first time

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00:06:34,740 --> 00:06:40,080
going through a countdown of what it would
be...a demo of our countdown. I was like,

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00:06:40,080 --> 00:06:43,919
wow, this is what I want to do. I want to

be part o f this team. Since then, I think,

84
00:06:43,919 --> 00:06:47,110
I haven't looked back.

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00:06:47,110 --> 00:06:52,139
She doesn't give herself, I would say, full credit, right? Jess is responsible for many

86
00:06:52,139 --> 00:06:57,970
of the technical aspects and the technical integration of our launch countdown. So she

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00:06:57,970 --> 00:07:04,969
leads a lot of different studies, a lot of different trades that we do. When we look

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00:07:04,969 --> 00:07:12,639
at our requirements for launch, she leads that effort for me in terms of the evaluation

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00:07:12,639 --> 00:07:18,550
of those requirements and kind of how they fit into our planning. So she is very much

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00:07:18,550 --> 00:07:23,009
key to everything that we're doing on the launch planning side of things.

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00:07:23,009 --> 00:07:28,520
So kind of a pair of questions. Number one, is it nerve-wracking to try and design all

92
00:07:28,520 --> 00:07:34,240
this without having the actual hardware here? Number two, is it normal? Is that what happens

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00:07:34,240 --> 00:07:38,249
for every space vehicle and rocket and mission?

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00:07:38,249 --> 00:07:43,460
Well, I think it is normal. I'm going to take,
I'll say, the easier part of that first. I

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00:07:43,460 --> 00:07:49,279
think is normal. If you look across the suite
of launch vehicles with NASA and Commercial,

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00:07:49,279 --> 00:07:56,249
and I'll go back in my background to early
ISS when we were designing the ground systems

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00:07:56,249 --> 00:08:00,949
to support the flight elements that would
come. So I think that is normal. But the exciting

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00:08:00,949 --> 00:08:05,009
part is when you get the flight hardware here
and you begin to integrate the flight hardware

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00:08:05,009 --> 00:08:11,129
with the ground systems. You begin to power
up those flight elements, and they come to

100
00:08:11,129 --> 00:08:15,069
life. You see what sort of challenges they
may throw at you...things that you've got

101
00:08:15,069 --> 00:08:21,840
to go work to resolve. To me, that's the...I'll
say the fun part (laughing). So we definitely

102
00:08:21,840 --> 00:08:26,060
look forward to getting that flight hardware
here at KSC.

103
00:08:26,060 --> 00:08:30,659
Once we get hardware here, once we check it
out, we know we're in good shape, it's time

104
00:08:30,659 --> 00:08:36,719
to get ready for a launch. Launch countdown
is where I believe your jobs really kind of...that's

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00:08:36,719 --> 00:08:41,550
where it all culminates, is in that countdown.
I've looked over some shoulders; I've seen

106
00:08:41,550 --> 00:08:46,050
some of these manuals. How big is the countdown
script? Because there's actually a script

107
00:08:46,050 --> 00:08:48,740
that you guys use. How big is that?

108
00:08:48,740 --> 00:08:53,649
Well, that's a hard one to answer just yet
because it's still being developed, right?

109
00:08:53,649 --> 00:08:58,260
So we're still working on it. What I can tell
you is...and it won't be as big as what we

110
00:08:58,260 --> 00:09:05,720
had in Shuttle. In Shuttle, we had six volumes
of launch countdown. When I say a volume,

111
00:09:05,720 --> 00:09:12,550
it occupied a multi-inch binder because it
was all paper. So we had six volumes that

112
00:09:12,550 --> 00:09:18,670
defined launch countdown. Now when I say that,
it wasn't six volumes of every step we're

113
00:09:18,670 --> 00:09:23,459
going to go do. It was a couple of volumes
of every step we're going to go do. It was

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00:09:23,459 --> 00:09:27,980
a volume that said this is what we do when
we scrub, and this is how we turn the vehicle

115
00:09:27,980 --> 00:09:34,170
around. We had another for any kind of issues
that arose. So we had what we call "pre-planned

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00:09:34,170 --> 00:09:39,220
contingency procedures," where if you had
an LCC exceedance, you could go run these

117
00:09:39,220 --> 00:09:43,550
and hopefully get to a point where you could
go launch. We will have something similar.

118
00:09:43,550 --> 00:09:48,449
It won't be nearly as big. In terms of page
count, it's hard to say right now because

119
00:09:48,449 --> 00:09:54,519
it's still in work; and it's also electronic.
So it's different than what we had. It's not

120
00:09:54,519 --> 00:10:00,230
quite as visible in terms of the volumes...you
know, it takes up a bookshelf. It's not quite

121
00:10:00,230 --> 00:10:07,699
like that. It will be hundreds of equivalent
pages when we're all done.

122
00:10:07,699 --> 00:10:13,140
Jess, do you think you'll ever get to a point
where you feel like you know the countdown...

123
00:10:13,140 --> 00:10:15,290
like where you've been through the book…

124
00:10:15,290 --> 00:10:16,750

It is my expectation.

125
00:10:16,750 --> 00:10:20,459
…You really feel like I know this countdown?
Obviously, the book is there to make sure

126
00:10:20,459 --> 00:10:25,360
every step is right, but can you get there
on like this massive process?

127
00:10:25,360 --> 00:10:32,040
I think so. I mean, I think I have to; otherwise
she'll fire me (laughing). No, but I think

128
00:10:32,040 --> 00:10:35,920
it's partly linked to the process. We're reviewing
the requirements a year, two years, in advance

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00:10:35,920 --> 00:10:43,850
prior to the launch. So I'll be able to become
familiar with, okay, what is supposed to happen?

130
00:10:43,850 --> 00:10:49,410
What is needed in order to support this requirement?
What is the timing of it? We also have the

131
00:10:49,410 --> 00:10:54,019
process where we do a lot of simulations to
train our launch team. I think being part

132
00:10:54,019 --> 00:10:59,331
of those really helps us walk through that
launch countdown and make sure that every

133
00:10:59,331 --> 00:11:02,279
day we become a lot more familiar with it.

134
00:11:02,279 --> 00:11:10,509
And I would say from my experience on Shuttle,
I didn't know the entire book...because you

135
00:11:10,509 --> 00:11:14,090
really do depend on your team to know their particular steps.

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00:11:14,090 --> 00:11:15,090
Yeah.

137
00:11:15,090 --> 00:11:19,360
But what you do know is how all of that work fits together and kind of what you have to

138
00:11:19,360 --> 00:11:23,879
do...kind of what you have to do first, what you have to do second, what drives what...kind

139
00:11:23,879 --> 00:11:32,290
of the puts and takes of launch countdown. Those things that are critical, you absolutely

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00:11:32,290 --> 00:11:41,111
know. I can remember in Shuttle...and we'll have similar steps for this vehicle. I can

141
00:11:41,111 --> 00:11:46,949
remember in Shuttle, we had...as you got down late into launch countdown, you had a series

142
00:11:46,949 --> 00:11:53,540
of steps that in the event that you had an engine that got shut down or you ended up

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00:11:53,540 --> 00:12:00,699
having a cutoff on the pad, you always had your fingers sleeved into those contingency

144
00:12:00,699 --> 00:12:05,949
steps because you knew that you're going to run those steps. And you're going to run them

145
00:12:05,949 --> 00:12:14,139
quickly. I can tell you even now, it's been
years since our last shuttle launch, and I

146
00:12:14,139 --> 00:12:20,110
can still run through those first few steps
from memory because, like Jess said, you practiced

147
00:12:20,110 --> 00:12:24,759
them in a sim. It was something that was a
part of every single sim. You knew that they

148
00:12:24,759 --> 00:12:31,240
were time-critical steps, and they needed
to be executed as such. So I would imagine

149
00:12:31,240 --> 00:12:37,470
that everybody on our team will have those
areas that are most important and most critical

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00:12:37,470 --> 00:12:41,899
for them, and they will absolutely know that
countdown. There's not a doubt in my mind.

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00:12:41,899 --> 00:12:46,300
So when you were asking Jess that question,
I was shaking my head because I'm thinking

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00:12:46,300 --> 00:12:48,540
I know everybody's going to know that.

153
00:12:48,540 --> 00:12:53,460
How much of that is the way that you operate...as
far as like, are you drilling your team? Do

154
00:12:53,460 --> 00:12:57,879
you have drills? What are these sims like
to get people ready to be prepared for that?

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00:12:57,879 --> 00:13:00,980
Well, "drill" is kind of a tough word.

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00:13:00,980 --> 00:13:04,180
I don't know your style...I'm just asking
the question.

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00:13:04,180 --> 00:13:12,939
I would say that...what is the style? I mean,
we certainly have an expectation of excellence

158
00:13:12,939 --> 00:13:22,240
within our team. I would say that's for all
of us, myself included. We definitely practice.

159
00:13:22,240 --> 00:13:29,509
We're at the beginning of our sim planning
and at the beginning of our sim regime. So

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00:13:29,509 --> 00:13:33,850
my expectation is different today than it
will be six months from now.

161
00:13:33,850 --> 00:13:34,850
Sure.

162
00:13:34,850 --> 00:13:40,220
But that's the reason we go through these...is
so that by the time we get to launch, those

163
00:13:40,220 --> 00:13:46,160
challenges, those technical problems that
can come up, those critical situations where

164
00:13:46,160 --> 00:13:51,750
you need to execute very quickly and very
decisively, our team has had an opportunity

165
00:13:51,750 --> 00:13:56,589
to practice those and practice them and practice

them again.

166
00:13:56,589 --> 00:14:00,681
Thinking about the fact that this is a team
that make all this happen, we know that it

167
00:14:00,681 --> 00:14:06,571
takes an army from design through construction
through delivery through preparation. How

168
00:14:06,571 --> 00:14:09,480
big of a team are we talking about on launch
day?

169
00:14:09,480 --> 00:14:15,749
We will have folks in Mission Control as part
of the team there.

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00:14:15,749 --> 00:14:16,749
In Houston?

171
00:14:16,749 --> 00:14:17,749
In Houston.

172
00:14:17,749 --> 00:14:18,749
Okay.

173
00:14:18,749 --> 00:14:24,009
We also will have folks that are in the Orion...their
engineering team that sits in the Orion Mer.

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00:14:24,009 --> 00:14:30,120
We have a team of SLS, the SLS Engineering
Support Team, that sits in the SESC, which

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00:14:30,120 --> 00:14:37,850
is a part of the HOSC at Marshall. Then we
have our team here. So asking how big is our

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00:14:37,850 --> 00:14:43,040
team...it's always a tough one for me because
I know how many people sit in the Firing Room.

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00:14:43,040 --> 00:14:48,720
We have just under 100 folks that will sit
in Firing Room 1. Then we have a Support Launch

178
00:14:48,720 --> 00:14:55,300
Team of folks that's about 60. So really,
between the two rooms, we're about 150 folks.

179
00:14:55,300 --> 00:15:01,769
So that's an easy question to go answer. But
for me, I believe that everyone that develops

180
00:15:01,769 --> 00:15:09,170
this hardware, everyone that tests this hardware,
everyone that gets us to launch, is part of

181
00:15:09,170 --> 00:15:13,759
our launch team. Whether they're sitting in
a firing room or in an engineering support

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00:15:13,759 --> 00:15:20,011
center on launch day, they are part of the
effort that got us to that day. And they're

183
00:15:20,011 --> 00:15:25,240
part of the launch team, regardless of where
they are. But to answer your question, about

184
00:15:25,240 --> 00:15:28,360
150 folks between the two firing rooms.

185
00:15:28,360 --> 00:15:36,540
Jessica, I'll start with you. Not knowing
the exact situation, how long is this countdown?

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00:15:36,540 --> 00:15:43,639

How far out from zero do we really feel like,
hey, it's launch day? Like, how far away are

187
00:15:43,639 --> 00:15:44,639
we?

188
00:15:44,639 --> 00:15:51,790
Well, I would say our launch countdown starts
two days prior to that T-Zero time frame.

189
00:15:51,790 --> 00:15:55,949
There's a lot of preparations that have to
go down. Like Charlie said, we have to power

190
00:15:55,949 --> 00:16:02,730
up the vehicle. We have to do multiple checks...and,
again, they're all driven by requirements.

191
00:16:02,730 --> 00:16:09,249
Then we have to start the vehicle cryo loading.
That event happens...we have to check whether

192
00:16:09,249 --> 00:16:14,249
the weather is going to support. There's a
lot of different factors that have to be taken

193
00:16:14,249 --> 00:16:20,779
into account. The decision if we're going
to go ahead and yank the vehicle is done somewhere

194
00:16:20,779 --> 00:16:28,519
around like seven hours prior to the T-Zero
time frame. And takes a while. We have a large

195
00:16:28,519 --> 00:16:32,379
vehicle...to put it simple terms.

196
00:16:32,379 --> 00:16:33,379
Sure.

197
00:16:33,379 --> 00:16:38,260
So we have to balance the commodities that
go between the core stage and the ICPS, the

198
00:16:38,260 --> 00:16:45,980
upper stage of the vehicle. At that point,
that takes probably the majority of that last

199
00:16:45,980 --> 00:16:50,860
seven hours of it. We have to monitor our
ground systems, monitor the vehicle, to make

200
00:16:50,860 --> 00:16:56,640
sure that everything is going as planned.
So I would say those last two days are definitely

201
00:16:56,640 --> 00:17:02,529
what we consider to be the launch countdown.
I know I put it in simplistic terms for something

202
00:17:02,529 --> 00:17:03,529
that is-

203
00:17:03,529 --> 00:17:09,920
Our countdown is just under two days. Jess
covered it well. I was sitting here thinking

204
00:17:09,920 --> 00:17:16,540
when you were asking the question about when
does it feel like launch. Countdown two days

205
00:17:16,540 --> 00:17:23,310
prior...that's our call to stations. I think
it will feel like launch when we roll to the

206
00:17:23,310 --> 00:17:31,470
pad because we know that when we roll out
of the VAB that we have some work to do at

207

00:17:31,470 --> 00:17:38,540
the pad prior, but that is our commitment
toward that launch date and that season that

208
00:17:38,540 --> 00:17:43,090
we have, where we have several days in which
we can go launch. So I think that final rollout

209
00:17:43,090 --> 00:17:46,470
is going to be an amazing event.

210
00:17:46,470 --> 00:17:50,150
Thinking about the countdown again, is this
two days around-the-clock work; or is this

211
00:17:50,150 --> 00:17:52,670
two days like on-shift time?

212
00:17:52,670 --> 00:17:56,600
It is two days around the clock. It will be
three shifts a day.

213
00:17:56,600 --> 00:17:57,600
Whoo!

214
00:17:57,600 --> 00:17:59,260
Yep...oh, it's going to be great!

215
00:17:59,260 --> 00:18:03,780
Are you having 100 people like per shift in
the firing room ready to go, or is this just

216
00:18:03,780 --> 00:18:05,910
like certain teams have to be there?

217
00:18:05,910 --> 00:18:10,600
Yeah, just certain teams. What happens is
that it's really based on the work that has

218

00:18:10,600 --> 00:18:15,070
to get done. So we have something we call
a bar chart, which lays out sequentially the

219
00:18:15,070 --> 00:18:22,110
work that is accomplished in launch countdown.
So the personnel in the room kind of come

220
00:18:22,110 --> 00:18:27,130
and go during, I'd say, that first day of
launch countdown. By once we get ready for

221
00:18:27,130 --> 00:18:32,940
cryo load, the room's pretty full and it will
remain that way through T-Zero. Certainly

222
00:18:32,940 --> 00:18:38,790
that first day, it depends on the work that
we have. There are positions...like the test

223
00:18:38,790 --> 00:18:43,540
directors are always in the room, the integration
console is always manned. But the other consoles

224
00:18:43,540 --> 00:18:47,130
are staffed based on the work that they have
to do.

225
00:18:47,130 --> 00:18:49,800
As the Launch Director, I'm assuming that
there's going to be part of you that will

226
00:18:49,800 --> 00:18:54,710
want to be present for 48 hours straight.
That's probably an unwise decision, all things

227
00:18:54,710 --> 00:18:59,240
considered. So have you thought through like
how to break apart your time during those

228

00:18:59,240 --> 00:19:00,240
two days?

229
00:19:00,240 --> 00:19:04,510
Yes, I actually have started to think about
that. I haven't gotten to the final answer

230
00:19:04,510 --> 00:19:13,670
yet. Luckily for me, I have great support.
So I'll have to figure out those - from tanking

231
00:19:13,670 --> 00:19:19,080
on, I'll definitely be there continuously.
In that first day, I'm really, really blessed

232
00:19:19,080 --> 00:19:25,900
because I have a really strong - our program
has a really strong test management group...the

233
00:19:25,900 --> 00:19:30,800
NASA Test Directors, as well as the TOSC test
conductors. They execute that launch countdown

234
00:19:30,800 --> 00:19:35,940
on behalf of the launch director. So they
are staffed around the clock. They're there

235
00:19:35,940 --> 00:19:41,380
all the time, and they really serve during
launch as the eyes and ears of the launch

236
00:19:41,380 --> 00:19:45,561
director. So if there's something that they
believe that I need to know, they certainly

237
00:19:45,561 --> 00:19:53,410
reach out. I check in with them regularly
on that first day of launch countdown. Then

238
00:19:53,410 --> 00:19:59,661

Jess will be involved as well, and she'll
have some shifts where she'll be in the Firing

239
00:19:59,661 --> 00:20:05,540
Room kind of doing that same thing...their
issues...and letting me know. But I have started

240
00:20:05,540 --> 00:20:11,261
to think about that. I haven't laid it out
as to which shift or which time period, but

241
00:20:11,261 --> 00:20:17,250
definitely from taking down continuous. Then
prior to that, there will be shifts that I'll

242
00:20:17,250 --> 00:20:22,540
be in the Firing Room and then some where
I'll depend on the test directors or my assistant

243
00:20:22,540 --> 00:20:28,780
launch director or Jess, as the technical
assistant, to help with that.

244
00:20:28,780 --> 00:20:34,050
I would be remiss if I didn't make a special
point to say that you are NASA's first female

245
00:20:34,050 --> 00:20:37,670
Launch Director, which has got to feel like
a huge honor. I was actually talking with

246
00:20:37,670 --> 00:20:42,970
somebody...are you the first female launch
director period? Because I did a little bit

247
00:20:42,970 --> 00:20:47,090
of homework and couldn't find anybody else...so,
first female Launch Director on earth. Is

248
00:20:47,090 --> 00:20:48,090

that accurate?

249
00:20:48,090 --> 00:20:53,840
I don't know about on earth. I would say the
first one for NASA.

250
00:20:53,840 --> 00:20:56,890
Okay, we know that's true...no question about
it.

251
00:20:56,890 --> 00:21:00,110
I don't know if it's bigger than that.

252
00:21:00,110 --> 00:21:04,450
So when you got assigned - I guess the question
is, first, like how does that happen? Is that

253
00:21:04,450 --> 00:21:10,310
like you get appointed to that? Did you apply
for this job? Like how does this transpire?

254
00:21:10,310 --> 00:21:17,830
There was an announcement and I applied for
it and interviewed for it and was selected.

255
00:21:17,830 --> 00:21:25,420
So that part of it is kind of, I would say,
the normal process of like many of us got

256
00:21:25,420 --> 00:21:34,640
our jobs. So it wasn't like an appointed thing.
It was an announcement came out, and I applied.

257
00:21:34,640 --> 00:21:40,720
I'll never forget when I got the phone call
though. That's when it really kind of became,

258
00:21:40,720 --> 00:21:42,560
I would say, real.

259
00:21:42,560 --> 00:21:45,920
Is that like a holy smokes moment? You're
like...wait a second, I gotta go launch a

260
00:21:45,920 --> 00:21:47,770
rocket now.

261
00:21:47,770 --> 00:21:54,980
I'll tell you...I was actually walking across
to a meeting. At the time, my office was in

262
00:21:54,980 --> 00:22:00,500
the ONC. I was actually walking to a meeting
over in headquarters and my phone rang and

263
00:22:00,500 --> 00:22:02,560
I looked down and it said Bob Cabana.

264
00:22:02,560 --> 00:22:04,840
He's our Center Director.

265
00:22:04,840 --> 00:22:09,760
Right, and so I said...I wonder why Mr. Cabana's
calling me.

266
00:22:09,760 --> 00:22:12,540
Either a good thing or a bad thing probably.

267
00:22:12,540 --> 00:22:22,160
So he offered me the job. My interview had
been several days before, and he offered me

268
00:22:22,160 --> 00:22:28,750
the job. When he first said it, I remember
saying, "Bob, can you repeat that? I just

269
00:22:28,750 --> 00:22:34,950
want to make sure I heard you correctly."
He repeated it, and then it was the moment

270
00:22:34,950 --> 00:22:42,690
of...wow, what a great opportunity and what
an honor!

271
00:22:42,690 --> 00:22:47,450
Awesome...yeah, congrats again on that. I
know that it's been a while since that happened,

272
00:22:47,450 --> 00:22:51,850
but I'm sure it's still kind of - and I'm
sure it won't fully set in until you see the

273
00:22:51,850 --> 00:22:55,320
rocket leave the pad. Then it's like...man,
that just happened.

274
00:22:55,320 --> 00:23:00,680
Yep, absolutely...definitely looking forward,
definitely looking forward to that launch

275
00:23:00,680 --> 00:23:10,830
day. But I will say, I am extremely blessed
in this role and I do feel honored. I am also

276
00:23:10,830 --> 00:23:19,040
very blessed to have the team that I have
because I think as a launch director, you're

277
00:23:19,040 --> 00:23:26,460
as good or you're as effective as the folks
on your team. I have an incredible, dedicated

278
00:23:26,460 --> 00:23:33,780
team that is working toward launch and making
sure that we're taking all the right steps

279
00:23:33,780 --> 00:23:37,750
and that we're working our products and that
we're getting launch countdown ready, and

280
00:23:37,750 --> 00:23:43,770
Sulphur is coming along, and all of our progress
and our sims and just all of that. It's a

281
00:23:43,770 --> 00:23:49,400
lot of work, and I'm really blessed to have
such a great team.

282
00:23:49,400 --> 00:23:54,340
I know that you're probably so focused that
this question might seem like a foreign concept,

283
00:23:54,340 --> 00:24:00,380
but is this the final career stop? Is there
somewhere to go past this? Like, is there

284
00:24:00,380 --> 00:24:06,090
more career wise; or is this like, I'm good
here...I can just hang out till I retire?

285
00:24:06,090 --> 00:24:15,050
That's a tough one. Let's see...let me think
about that for a second. So I think about

286
00:24:15,050 --> 00:24:25,971
it like this. A couple of summers ago, I went
to Zion National Park and Bryce Canyon. Every

287
00:24:25,971 --> 00:24:33,010
place we went, I thought...This is the most
beautiful place in the world. And the next

288
00:24:33,010 --> 00:24:37,230
day, there was another most beautiful place
in the world. And each of those, you stopped

289
00:24:37,230 --> 00:24:44,930
for a moment and kind of took that in. So
I think all of our careers...it's a path,

290
00:24:44,930 --> 00:24:54,510
right? It's a path and it's a journey. Every
job that I've had, I've taken that moment...kind

291
00:24:54,510 --> 00:24:59,700
of like those different destinations within
a national park, where you say, "This is an

292
00:24:59,700 --> 00:25:06,950
incredible opportunity; this is a wonderful
place, and I could stay here for a long time."

293
00:25:06,950 --> 00:25:12,590
And then something else came along. When I
was working in payloads, I felt that way.

294
00:25:12,590 --> 00:25:17,900
When I had an opportunity to go to the Test
Director Office, I felt like it's time to

295
00:25:17,900 --> 00:25:28,440
continue that journey. I absolutely right
now cannot imagine a job more appealing than

296
00:25:28,440 --> 00:25:36,140
the one that I have. Like, I love what I do.
I love the people I work with. I can't wait

297
00:25:36,140 --> 00:25:40,870
to see that vehicle out on the pad. So for
me, it's hard to think beyond that. But I

298
00:25:40,870 --> 00:25:47,041
never want to say, "Nope, this is it," because
you never know what life has in store. If

299
00:25:47,041 --> 00:25:52,490
I had stopped at some of those other locations
and decided not to take that path to the next

300
00:25:52,490 --> 00:25:58,380
one, I wouldn't be where I am today. I wouldn't
get this opportunity. So I don't like to say,

301
00:25:58,380 --> 00:26:03,910
"Nope, there's nothing else after this."
But I will tell you, it is hard to imagine

302
00:26:03,910 --> 00:26:06,670
a job better than the one that I have.

303
00:26:06,670 --> 00:26:07,670
Sure.

304
00:26:07,670 --> 00:26:10,140
And there is no other job right now that I
would want.

305
00:26:10,140 --> 00:26:13,570
Cool. Jess, any interest in becoming a launch
director someday?

306
00:26:13,570 --> 00:26:19,690
No, I've told her that level of responsibility
she has in that job...I don't know if I could

307
00:26:19,690 --> 00:26:27,040
deal with it. I am just glad to be part of
her team and be supporting her. Like I said,

308
00:26:27,040 --> 00:26:33,370
I don't know where my career would lead. Like
Charlie, I've taken different roads that led

309
00:26:33,370 --> 00:26:38,730
me to a different place. I never really had
a plain career path that I said, "Yes, I'm

310

00:26:38,730 --> 00:26:44,750
going to be supporting the EM-1 launch team."
And yet, here I am. So I'm just honored to

311
00:26:44,750 --> 00:26:52,380
be working side by side with Charlie and being
part of that EM-1 launch team.

312
00:26:52,380 --> 00:26:57,970
Fantastic. We're going to the moon. We need
to not forget our destination here. We're

313
00:26:57,970 --> 00:27:01,890
not just launching a rocket. We're going somewhere.
We're going to the moon. The president has

314
00:27:01,890 --> 00:27:08,040
given us a charge to be boots on the moon
2024, five years from now. That road appears

315
00:27:08,040 --> 00:27:15,400
to run through the Space Launch System, which
means that it runs through your Firing Room.

316
00:27:15,400 --> 00:27:20,220
Tell me about what that's like to hear that
announcement come out about, hey, 2024...let's

317
00:27:20,220 --> 00:27:21,220
go.

318
00:27:21,220 --> 00:27:28,320
Exciting... I think about our first crewed
flight. I mean, you're absolutely right...boots

319
00:27:28,320 --> 00:27:33,900
on the moon in five years does run through
our launch vehicle. It does run through our

320
00:27:33,900 --> 00:27:40,330

exploration missions, and it absolutely runs
through Firing Room 1 and our launch team.

321
00:27:40,330 --> 00:27:47,020
I think all of us on that launch team recognize
that. We recognize the cadence that is to

322
00:27:47,020 --> 00:27:51,660
come. I know that there will be challenges
and things we'll have to go work through.

323
00:27:51,660 --> 00:27:54,480
But for me, it is absolutely exciting.

324
00:27:54,480 --> 00:28:00,210
So, Jess, being a little bit kind of further
down the line from that...as you guys are

325
00:28:00,210 --> 00:28:05,190
having meetings, I'm sure this is coming up
in conversation. Obviously, it puts an urgency

326
00:28:05,190 --> 00:28:12,630
to the 2020 launch of SLS. Is there a change
in mood and atmosphere from the teams in the

327
00:28:12,630 --> 00:28:16,200
Firing Room or just in the planning and preparation
portion?

328
00:28:16,200 --> 00:28:20,850
I would say everyone in our program is really
excited. I think a lot of us have been working

329
00:28:20,850 --> 00:28:27,420
on this vehicle for a long time. Knowing that
we have this sense of urgency to get there,

330
00:28:27,420 --> 00:28:35,540
to have a distinct goal, it is very exciting.

I mean, I can imagine some similarities back

331
00:28:35,540 --> 00:28:40,550
in the '60s when they said, "We're going to
get to the moon by the end of this decade."

332
00:28:40,550 --> 00:28:45,680
It's kind of that urgency, that dedication
of people...let's try to do what we can to

333
00:28:45,680 --> 00:28:53,130
get there, give the best of ourselves to make
sure we accomplish the mission. So I think

334
00:28:53,130 --> 00:28:57,210
that is reflected in everybody that works
for our program.

335
00:28:57,210 --> 00:29:03,920
I would add to that. I'm glad you said that,
Jess, because it put a thought in my head.

336
00:29:03,920 --> 00:29:12,220
I think that when you think about that and
you lay out the work, there will be challenges.

337
00:29:12,220 --> 00:29:16,501
But one of the things that I think our team
does...and I saw it so many times in the Firing

338
00:29:16,501 --> 00:29:21,540
Room in Shuttle...is that when we have a challenge,
when we have a technical problem that needs

339
00:29:21,540 --> 00:29:27,940
to be solved, our teams come together. They
rally, they resolve it, and we move on. So

340
00:29:27,940 --> 00:29:35,120
I look at this as a great opportunity for

our teams to meet those challenges, and I

341
00:29:35,120 --> 00:29:41,940
see the same thing. I think there's a sense
of purpose and direction and urgency and just

342
00:29:41,940 --> 00:29:47,500
a sense of excitement for what's to come.
We're a part of something incredibly special.

343
00:29:47,500 --> 00:29:51,800
So does it become some kind of like a war
cry almost of like when there's long days,

344
00:29:51,800 --> 00:29:56,600
there's stressful days, there's challenges,
it's like...hey, 2024, let's go.

345
00:29:56,600 --> 00:30:02,040
Well, I can only speak for myself, right?
On my board I have the words, "What do I have

346
00:30:02,040 --> 00:30:09,190
to do today to get to EM-1?" I really need
to change that now that we have the boots

347
00:30:09,190 --> 00:30:14,840
on the moon 2024; and it really needs to say,
"What do I have to do today to get boots on

348
00:30:14,840 --> 00:30:22,180
the moon for 2024?" But for me, I look at
that every single day; and I do think about

349
00:30:22,180 --> 00:30:26,800
that. That is a guiding principle for me.
When I come in and figure out what am I going

350
00:30:26,800 --> 00:30:32,140
to spend my time on, it really is through

the lens of what do I have to do to get us

351
00:30:32,140 --> 00:30:39,490
to launch? And I know I'm not alone in that.
I know that our program and our sister programs

352
00:30:39,490 --> 00:30:44,280
at SLS and Orion...while they may have something
different written on their board, I know that

353
00:30:44,280 --> 00:30:47,310
they're marching to that same cadence.

354
00:30:47,310 --> 00:30:53,580
Awesome. Thinking about your own paths to
get to where you are and for those, Charlie,

355
00:30:53,580 --> 00:30:57,090
kind of in your experience that might walk
into your Firing Room and just kind of marvel

356
00:30:57,090 --> 00:31:03,490
at the team, as you look and think about the
next generation, what would you say to them?

357
00:31:03,490 --> 00:31:06,810
If you could kind of have a few minutes with
them, what would be the advice...what would

358
00:31:06,810 --> 00:31:11,240
be the words of encouragement or inspiration
or challenge to them?

359
00:31:11,240 --> 00:31:19,630
Well, one of my favorite parts of this job,
besides obviously planning launch countdown

360
00:31:19,630 --> 00:31:29,140
and launch ops, is the opportunity to speak
to and work with young people. I like to encourage

361
00:31:29,140 --> 00:31:36,580
young folks to consider the STEM field. Because
I look at it -- I had a high school teacher

362
00:31:36,580 --> 00:31:42,820
that actually...when I was in the 11th grade,
I didn't know what I wanted to do. I was kind

363
00:31:42,820 --> 00:31:48,390
of thinking about different options. My physics
teacher actually said, "Charlie, have you

364
00:31:48,390 --> 00:31:54,590
ever thought about being an engineer?" Man,
I was like...hm, what would I do with that

365
00:31:54,590 --> 00:32:01,310
degree, right? That was the question I asked
him. And he said, "What couldn't you do with

366
00:32:01,310 --> 00:32:08,960
that degree?" Now, how right he has been.
I mean, I look at all of the things that I

367
00:32:08,960 --> 00:32:14,700
have been able to be a part of; and it was
all opened by that engineering degree. So

368
00:32:14,700 --> 00:32:22,860
I would say to young folks and to young girls
to consider that STEM field because you never

369
00:32:22,860 --> 00:32:29,660
know where that path will lead you. If you
would have told me in the 11th grade when

370
00:32:29,660 --> 00:32:35,230
that physics teacher encouraged me to consider
engineering in college that one day I would

371
00:32:35,230 --> 00:32:40,180
have an opportunity to work on flight hardware,
that one day I would be a part of a shuttle

372
00:32:40,180 --> 00:32:47,400
launch team, that one day I would be the first
woman Launch Director for NASA...that would

373
00:32:47,400 --> 00:32:56,500
have been hard to take in. But all of those
things were possible because of the education

374
00:32:56,500 --> 00:33:03,230
and the background and the opportunity that
that engineering degree brought to me. Now,

375
00:33:03,230 --> 00:33:09,410
it took a lot of hard work. It took a lot
of other things as well, but absolutely that

376
00:33:09,410 --> 00:33:19,790
was that first step. So I would say engineering
is a great career field, and it opens up a

377
00:33:19,790 --> 00:33:21,240
variety of doors.

378
00:33:21,240 --> 00:33:31,070
I feel like we definitely face a lot of challenges
in our careers. I'm trying to think of a specific

379
00:33:31,070 --> 00:33:40,300
example. But to me...I've done this a lot
in my career, where I've moved into an unknown

380
00:33:40,300 --> 00:33:44,770
field, something that I've never done before.
That's when I was kind of joking at the beginning.

381
00:33:44,770 --> 00:33:50,220
It's like, yeah, I've gone to different places
in my career here at the Space Center...not

382
00:33:50,220 --> 00:33:56,650
even with a direct path...but I took a chance.
I would say maybe coming to this job was an

383
00:33:56,650 --> 00:34:02,200
example of that. I said, "I don't have any
experience on launch countdown, but I'll learn

384
00:34:02,200 --> 00:34:06,880
to see what it takes to get there." I mean,
that's definitely a challenge. I cannot tell

385
00:34:06,880 --> 00:34:12,990
you there's not something every day that I
don't learn about for the first time. But

386
00:34:12,990 --> 00:34:18,530
it's kind of like keep pushing your boundaries
to get you there.

387
00:34:18,530 --> 00:34:23,360
Awesome. A great pleasure being with both
of you...Charlie Blackwell-Thompson, our Launch

388
00:34:23,360 --> 00:34:29,740
Director, Jessica Parsons, her right hand.
I am so excited and so glad it's you and not

389
00:34:29,740 --> 00:34:33,510
me. Good luck this coming year and, obviously,
all the way through 2024.

390
00:34:35,510 --> 00:34:34,510
Thank you.

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00:34:35,510 --> 00:34:39,540
It's going to be great.

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00:34:39,540 --> 00:34:44,290
We are excited to watch the triumph of the
entire Space Launch System Team in the coming

393
00:34:44,290 --> 00:34:50,909
years and wish them all speedy success. Special
thanks to our guests, Charlie Blackwell-Thompson

394
00:34:50,909 --> 00:34:52,850
and Jessica Parsons.

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00:34:52,850 --> 00:35:00,780
To learn more about Exploration Ground Systems,
visit: nasa.gov/egs. To learn more about everything

396
00:35:00,780 --> 00:35:07,990
going on at the Kennedy Space Center, go to:
nasa.gov/kennedy. Check out NASA's other podcasts

397
00:35:07,990 --> 00:35:13,941
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of our centers at nasa.gov/podcasts. A special

398
00:35:13,941 --> 00:35:18,900
shout-out to our producer, John Sackman, our
soundman, Lorne Mathre, editor Michelle Stone,